

AMENDMENT UNDER 37 C.F.R. § 1.111  
SERIAL NO. 09/756,881  
ATTORNEY DOCKET NO. Q62603

**REMARKS**

Claims 1-14 are all the claims pending in the application. New claims 15-20 are hereby added.

**I. Office Action Summary**

Applicants thank the Examiner for indicating that claim 8 contains allowable subject matter. Claims 1-7, 9, 12-14 have been rejected under 35 U.S.C. § 102(e) and claims 10-11 have been rejected under 35 U.S.C. § 103(a). Reconsideration and allowance of claims 1-14 is respectfully requested in view of the amendments and the following remarks.

**II. Rejection under 35 U.S.C. § 102(e) over U.S. Patent No. 5,937,152 to Oda et al.  
("Oda")**

The Examiner rejected claims 1-7, 9, 12-14 under 35 U.S.C. § 102(e) as being anticipated by Oda.

**A. *Claim 1***

Applicants respectfully traverse this rejection first with respect to claim 1. Claim 1 recites:

fixing signal output means for outputting a mode fixing signal determining whether the dot is formed or not, for transmitting the mode fixing signal to the drive means associated with a group in the dot formation means in which whether the dot is formed or not is predetermined by the dot formation condition, instead of the record data.

The Examiner contends that the printer driver in Oda respectively corresponds to the claimed fixing signal output means, but Applicants believe that the Examiner is misinterpreting and/or misapplying the teachings of the reference. For example, in Oda, an operator selects a

AMENDMENT UNDER 37 C.F.R. § 1.111

SERIAL NO. 09/756,881

ATTORNEY DOCKET NO. Q62603

monochromatic or color mode on a print menu display on the screen 3. When color print mode is selected, print driver 14 produces dot image data for four colors, whereas when monochromatic print mode is selected, print driver 14 produces dot image data for only one of the four colors. (Fig. 3, col. 5, l. 64 to col. 6, l. 11). Also, print driver 14 transmits a mode indication command to the printer 7 before transmitting print data. (Fig. 3, col. 7, l. 10-30). This mode indication command is transferred through the CPU 38 to address generator 41. (Fig. 6, col. 13, l. 2-12). This address generator 41 stores appropriate print data to buffer memory 18, and then this print data, along with two clock signals, are supplied to the print head drive portion 19. (Fig. 6, col. 13, l. 12-26; col. 10, l. 53-55). Therefore, mode indication command is transmitted to the CPU, whereas the driving means only receive the recorded data.

The Examiner indicates that driving means of claim 1 is taught in Oda, Fig. 5, element 19. (page 2). Yet, in Oda, driving means 19 supplied with print data and two clocks, do not receive a mode-fixing signal. (Fig. 6, col. 10, l. 53-55). In fact, Oda's driving means 19 receive print data from buffer memory 18, and without making any further determinations, driving means 19 prints this record data using dot formation means. In short, in Oda, the indication command is transmitted to the CPU and is not a mode-fixing signal transmitted to driving means for further determinations. Therefore, Oda fails to teach or suggest fixing means which transmit a mode-fixing signal to drive means, as recited in claim 1, instead Oda teaches transmitting recording data to the driving means.

In addition, as indicated by the Examiner, in Oda, driving means 19 selects print heads to which to apply voltage based on print data received (page 3). In short, Oda selects print heads

AMENDMENT UNDER 37 C.F.R. § 1.111  
SERIAL NO. 09/756,881  
ATTORNEY DOCKET NO. Q62603

based on print data received and not on a predetermined dot formation condition. As a result, Applicants submit that claim 1 is patentable over the reference.

**B. *Claims 2-7 and 9***

Since claims 2-7 and 9 are dependent upon claim 1, Applicants submit that they are patentable at least by virtue of their dependency.

**C. *Claims 12-14***

Applicants respectfully traverse this rejection first with respect to claim 12. Claim 12 recites:

outputting a mode fixing signal determining whether the dot is formed or not, and transmitting the mode fixing signal to the drive means associated with the group in which whether the dot is formed or not is predetermined, instead of the record data;

This limitation is similar to the limitation of fixing signal output means recited in claim 1. Since claim 1 contains features, namely fixing signal output means partially for transmitting the mode fixing signal to the driving means, that are similar to the features argued above with respect to claim 1, those arguments are respectfully submitted to apply with equal force here. For substantially the same reasons, therefore, Applicants respectfully submit that claim 12 is patentable over Oda. Claims 13-14 are patentable at least by virtue of their dependency.

**III. Rejection under 35 U.S.C. § 103 (a) over Oda in view of Ishinaga et al. US 6,290,334 (“Ishinaga”).**

The Examiner rejected claims 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Oda in view of Ishinaga. Applicants have already demonstrated that Oda does not meet all

AMENDMENT UNDER 37 C.F.R. § 1.111

SERIAL NO. 09/756,881

ATTORNEY DOCKET NO. Q62603

the requirements of independent claims 1 and 12. Ishinaga is relied upon only for its teaching of drive signal with a shift register for parallel-converting the record data which is serial transmitted; and for the mode fixing means wherein signal transmission path is arranged between a shift register and dot formation means.

The Examiner asserts that it would have been obvious to combine Ishinaga and Oda because Ishinaga's design reduces the number of pads on a substrate, so that a larger number of recording elements can be formed on the substrate. However, the present invention as claimed in claims 10 and 11 deals with a printer capable of printing in both color and monochrome mode. An artisan of ordinary skill confronted with the problem of avoiding the transmission of useless data would never have even thought to consult a reference like Ishinaga; this reference deals with unrelated problems and would not commend itself to such a person as a reference in which solutions to avoiding the transmission of useless data might be found. Ishinaga teaches a substrate with decreased number of pads thus allowing large number of recording elements to be formed on the substrate, and Oda teaches an improved printing device capable of using buffer memory with high efficiency for color or monochrome printing with varied resolutions. In short, Ishinaga and Oda are non-analogous arts and cannot be validly combined with each other in a rejection under 35 U.S.C. § 103(a).

In addition, those skilled in the art would need to make modifications not taught in the prior art, in order to combine the references in the manner suggested by the Examiner. As explained above, neither Ishinaga, nor Oda discloses mode fixing means with a mode-fixing

AMENDMENT UNDER 37 C.F.R. § 1.111

SERIAL NO. 09/756,881

ATTORNEY DOCKET NO. Q62603

signal transmitted to the drive means. Therefore, transmitting mode fixing signal to the drive means is a modification not taught by the prior art.

Clearly, Ishinaga does not compensate for the above-identified deficiencies of Oda. Together, the combined teachings of these references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claims 1 and 12. Since claims 10 and 11 are dependent upon claim 1, they may be patentable at least by virtue of their dependency.

#### **IV. Allowable subject matter**

The Examiner has objected to claim 8 for being dependent upon a rejected base claim. Applicants respectfully submit that the rejection of the corresponding base claim is believed to be overcome. Therefore, Applicants respectfully request the Examiner to withdraw the objection to claim 8.

#### **V. Newly added claim**

In order to provide more varied protection and to capture allowable subject matter, Applicants add claims 15-20. New independent claim 15 is respectfully submitted to patentably distinguish over Oda, Ishinaga, and any other prior art in view of its requirement for fixing-signal output means "for transmitting the mode fixing signal directly to the drive means," wherein the dot formation is predetermined by the dot formation condition in the mode fixing circuit. New independent claim 15 is clearly supported in the specification on page 25 (lines 11-24). Applicants respectfully submit that claims 16-17 do not raise new matter and are allowable by virtue of their dependency on claim 15.

AMENDMENT UNDER 37 C.F.R. § 1.111  
SERIAL NO. 09/756,881  
ATTORNEY DOCKET NO. Q62603

New independent claim 18 is respectfully submitted to patentably distinguish over Oda, Ishinaga, and any other prior art in view of its requirement for divided groups of the dot formation means comprise a first black and a second black. Claim 18 recites no new matter and is clearly supported by the specification on page 29, lines 1-17. Also, Applicants respectfully submit that claims 19 and 20 do not raise new matter are allowable by virtue of their dependency on claim 18 and 1, respectively.

**VI. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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AMENDMENT UNDER 37 C.F.R. § 1.111  
SERIAL NO. 09/756,881  
ATTORNEY DOCKET NO. Q62603

**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

The specification is changed as follows:

**Please amend page 14, last paragraph beginning on page 14, to read:**

As shown in Fig. 3, in the ink jet printer 100, a carriage 101 is connected to a carriage motor 103 of a carriage mechanism 12 via a timing belt 102 and is guided by a guide member 104 so as to reciprocate in the paper width direction of recording paper 105. The ink jet printer 100 is formed with a paper transport mechanism 11 using a paper transport roller 106. An ink jet recording head 10 is attached to the face of the carriage 101 opposed to the recording paper [106] 105, in the example shown in the figure, the lower face.

**Please amend page 15, last paragraph beginning on page 16, to read:**

Fig. 4 is a schematic representation to show a nozzle arrangement formed on the recording head 10 shown in Fig. 3. As seen in the figure, in the ink jet recording apparatus 1 of the invention, the recording head 10 is formed with five rows (five groups) of nozzles [111] 11 and the nozzles [111] 11 are nozzle orifices belonging to three color groups for jetting three color inks of cyan (C), magenta (M), and yellow (Y), nozzle orifices belonging to a first black group (BK1) for jetting black ink on the monochrome recording and stopping jetting ink drops on the color recording, and nozzle orifices belonging to a second black group (BK2) for jetting black ink on the color recording and on the monochrome recording. The nozzle orifices corresponding to cyan (C), magenta (M), yellow (Y), and the second black group (BK2) are arranged on the

AMENDMENT UNDER 37 C.F.R. § 1.111  
SERIAL NO. 09/756,881  
ATTORNEY DOCKET NO. Q62603

same lines with spacing of 1/180 inches; the nozzle orifices belonging to the first black group (BK1) are formed at 1/360-inch shift positions from the nozzle orifices.

**Please amend page 17, first full paragraph, to read:**

The basic operation in the print controller 40 thus configured is similar to that of the ink jet recording apparatus in the related art; as shown in Fig. [5] 6, record information created with the printer driver 96 installed in the personal computer is input to the printer via various interfaces for each page (step ST10). At this time, the one-page record information is stored as data in the input buffer 44A formed in the DRAM by automatically switching the interfaces (step ST20). Next, the control section (CPU) executes command analysis on the data stored in the input buffer 44A one byte at a time and determines whether the data is record data or a record processing command (step ST30).

**IN THE CLAIMS:**

**The claims are amended as follows:**

3. (Once Amended) The recording apparatus as set forth in claim [2] 1, wherein the storage means is provided with storage regions enough for a maximum number of groups of the dot formation means which are used at the same time; and wherein the control means reserves storage regions in the storage means enough for groups used on a present recording.

AMENDMENT UNDER 37 C.F.R. § 1.111  
SERIAL NO. 09/756,881  
ATTORNEY DOCKET NO. Q62603

4. (Once Amended) The recording apparatus as set forth in claim [2] 1, wherein the storage means is provided with storage regions only enough for a maximum number of groups of the dot formation means which are used at the same time.
  
6. (Once Amended) The recording apparatus as set forth in claim [2] 1, wherein when an excess storage region occurs in the storage means in accordance with unnecessary of the record data transmission due to the mode fixing signal output, the control means utilizes the excess storage region for a serial transmission of the record data.
  
7. (Once Amended) The recording apparatus as set forth in claim [2] 1, wherein when an excess storage region occurs in the storage means in accordance with unnecessary of the record data transmission due to the mode fixing signal output, the control means utilizes the excess storage region for another data processing.

**Claims 15-20 are added as new claims.**